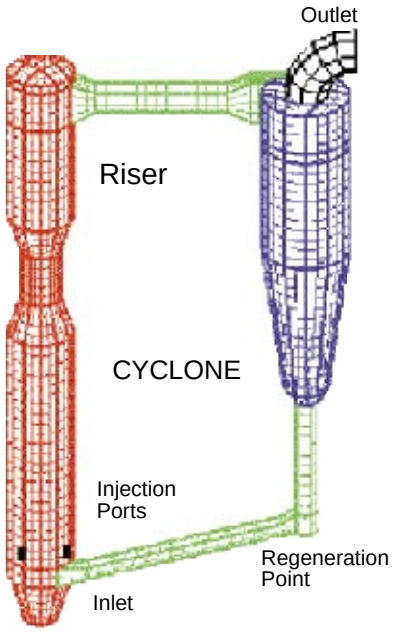
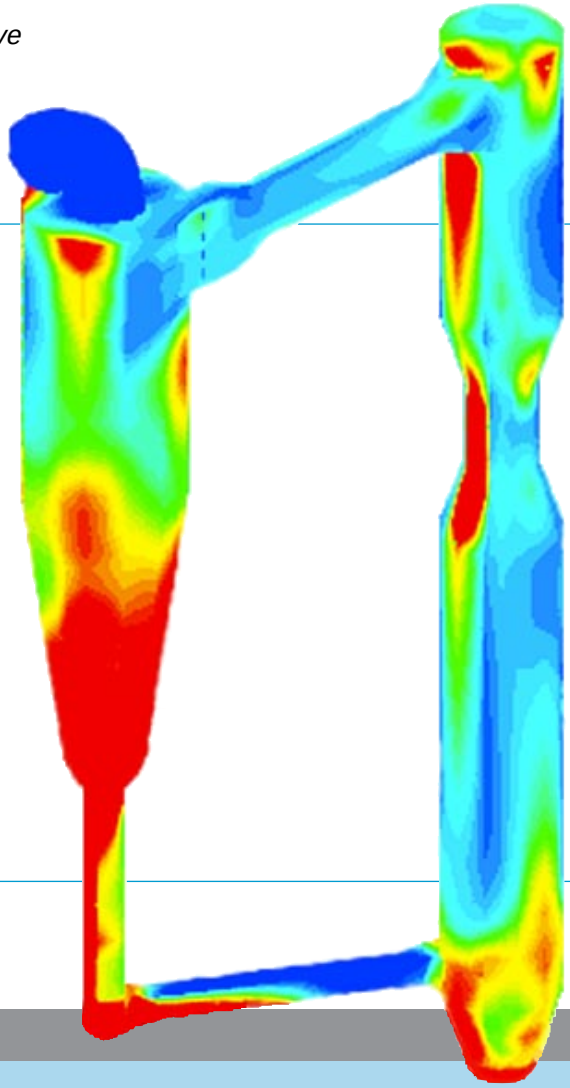
BITS
computing&communications news

OCTOBER 1996

COMPUTING, INFORMATION, AND COMMUNICATIONS (CIC) DIVISION • LOS ALAMOS NATIONAL LABORATORY

Scientists at Los Alamos are using computer simulations to solve complex problems in fluid dynamics. The images shown here were part of a demonstration simulation of a reactive 3-phase flow involving a vaporizing oil phase, a granular catalyst phase, and an oil vapor phase. This simulation was performed by Nely Padial, Brian VanderHeyden, and Buck Kashiwa of T-3 using the multi-phase flow simulation code library called CFDLIB. This work is being conducted in cooperation with Exxon as part of a CRADA entitled "Three-Phase Chemical Reaction Simulation," which has a goal of developing software that can be used to optimize processes in petroleum refining and chemicals manufacturing. Most of the computations in this research effort have been performed on the Advanced Computing Laboratory's Cray T3D parallel supercomputer.





Inside this issue

CIC Customer Service Center . . . . . .(505) 665-4444 or cichelp@lanl.gov

Integrated Computing Network (ICN)

Consulting:

Centralized scientific and engineering computing .....consult@lanl.gov or 7-5746

Lab-wide administrative and business systems.....labwide@lanl.gov or 7-9444

Passwords (required for access to ICN) .....validate@lanl.gov or 5-1805

Central Computing Facility (CCF).....7-4584

Advanced Computing Laboratory (ACL).....5-4530

Desktop Support Center (DSC).....7-4357 (7-HELP)

For PC questions: PC-help@lanl.gov or 7-9372

For Macintosh questions: Mac-help@lanl.gov or 5-1361

For UNIX questions: UNIX-help@lanl.gov or 5-2220

For groups with CIC-2 support contracts: 5-2220

Telephone Services Center.....7-3400

(includes voice mail)

Computer training

Lab-wide systems support training.....7-9444

Computer/workstation training.....7-9399

Personal computer training.....7-9071

Microcomputer support facility seminars.....7-4357

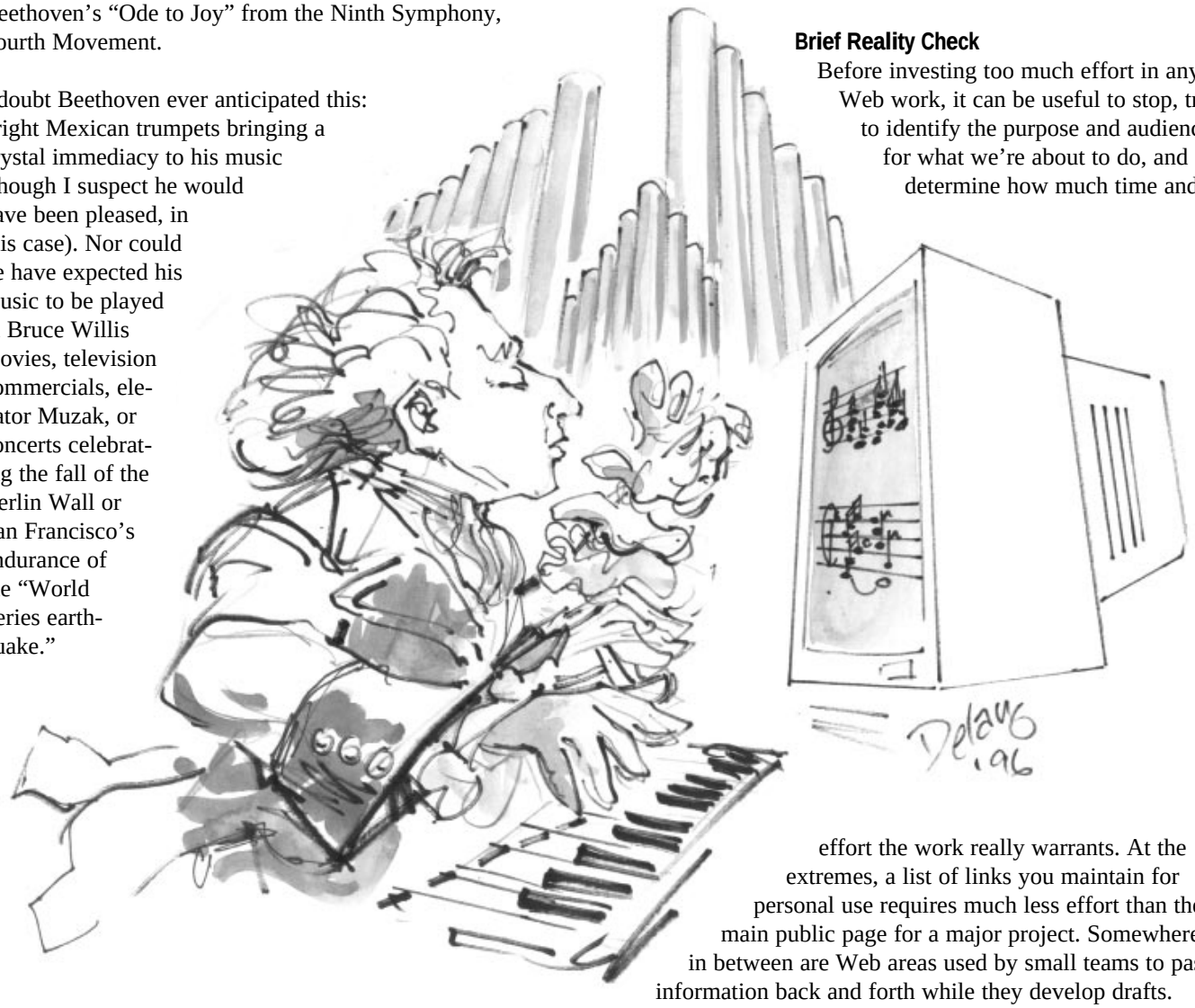
(Macintosh/IBM software, lending library)

List of Forms

Mariachis Weave Beethoven? More Tips and Tricks

Mismaloya Bay, Puerto Vallarta: We sit in a restaurant atop the bluffs overlooking the bay and watch the day's clouds begin to gather. It is September, and the rain will come at about 4:00. Below us, a pelican flies within a wingspan of the water. Within the restaurant, a mariachi band plays ... Beethoven's "Ode to Joy" from the Ninth Symphony, Fourth Movement.

I doubt Beethoven ever anticipated this: bright Mexican trumpets bringing a crystal immediacy to his music (though I suspect he would have been pleased, in this case). Nor could he have expected his music to be played in Bruce Willis movies, television commercials, elevator Muzak, or concerts celebrating the fall of the Berlin Wall or San Francisco's endurance of the "World Series earthquake."



Beethoven issued his music, his thread, and lost control of it. A global audience has made their own uses of it, interwoven their own threads, and the resulting fabric is a web not unlike our own. Like Beethoven, we seek to serve multiple audiences who will make multiple uses of our material in multiple forms. (Granted, the parallel does start to unravel when we consider the likelihood that any of our Web work will survive as long as that particular symphony...)

As have previous BITS articles, this article discusses a few simple, practical ways to make our Web space more effective. Some suggestions are obvious; others were developed through trial and more than a bit of error; all have been tested and work.

Brief Reality Check

Before investing too much effort in any Web work, it can be useful to stop, try to identify the purpose and audience for what we're about to do, and determine how much time and effort the work really warrants. At the extremes, a list of links you maintain for personal use requires much less effort than the main public page for a major project. Somewhere in between are Web areas used by small teams to pass information back and forth while they develop drafts.

The mechanisms described in this paper can be simple to implement the first time around, but all of them require ongoing maintenance. Hence, unless they're just being used for testing, they're probably only worth the long-term effort in Web areas where we anticipate a significant audience with a fairly wide variety of needs. Given that caveat, however, the mechanisms do work and have proven useful.

That Spinner-Teleport-JumpTo Thingy

It is becoming more common to see drop-down form lists being used for navigation. As illustrated below, the user selects a destination from the list, then presses a button to go there.

Drop-Down Form List as Seen through Netscape

These are easily constructed in HTML forms, but there are several potential potholes. The above example was built with the following HTML fragment:

<form method=POST action="/path/cgi-script.pl">

<select name="dest">

<option value="/path/default.html" selected>Select a Destination</option>

<option value="/path/target1.html">Target Page 1</option>

<option value="/path/target2.html">Target Page 2</option>

<option value="/path/target3.html">Target Page 3</option>

<option value="/path/target4.html">Target Page 4</option>

</select>

<input type="submit" value="Jump To Destination">

</form>

The CGI script contains the following Perl fragment:

print "Content-type: text/html\n";
print "Location: $FORM{'dest'}\n\n";

As described in the June 1996 BITS article, "Barnstorming the Web," the "Location:" line will automatically redirect the browser to the target page. (Note: The above examples assume an NCSA HTTPd server running on UNIX; they may require changes for other server configurations.)

Like other forms, the above can be set inside a table for formatting purposes. Due to screen space limitations, it can sometimes be helpful to put the button on the line beneath the list.

Pothole 1: Error Messages in the Target Page. When I first worked with these drop-down lists, I'd frequently run into errors when jumping to a page that contained embedded graphics (not always, not all browsers, but frequently nonetheless). This would lead to my browsers choking up and eventually disrupting my entire desktop.

The problem was that the browser didn't know what type of content it was receiving, so it didn't know how to interpret it. The solution is to remember to print the "Content-type:" line in the Perl script. (It's an embarrassing error to admit to, but maybe publicizing it can save some others the embarrassment I went through.)

Pothole 2: Links in the Target Page Don't Work. The next problem I ran into was that the target pages would come up just fine, but many of their links would be broken (again, only certain browsers, but since Netscape was one of them, the problem was significant). Absolute links worked okay, but relative links did not.

The problem here was that the browser didn't know the correct URL of the page after it was loaded. It thought the URL was where it had been sent ("/path/cgi-script.pl"), instead of where it had arrived ("/path/target1.html"). Hence, it used the location of the CGI script as the reference point for relative links, leading it to look in the wrong places.

The solution is to explicitly tell the browser where it is by including the following line in the HTML <head> section:

<base href="/path/target1.html">

When that line is included, the browser will read it and use it as the starting point for all relative links.

Pothole 3: Internal "#name" Links Don't Work. That's right, they don't. A target URL including an internal link ("/path/target1.html#name") fails with all browsers I have

tested, and I haven't found any solution except to avoid them. (If you know how to solve this, please let me know, and I'll include it in a future article.)

Pothole 4: People Don't Know How to Use Them. Although their use is becoming more common, drop-down lists for navigation can still confuse a number of users. Most commonly, people don't realize it's a two-step process: they'll either press the button before selecting a target or double-click on a target and wait for something to happen.

Based on input offered by the IA Internet/WWW Subject Area team, I now do three things to address this:

1. Include instructions on the page where the list appears;

2. Include instructions on a default page that people go to if they press the button without first selecting a target; and

3. Make sure the list comes before the button (the other order was found to be counter-intuitive).

As long as the above potholes are addressed, I've found the drop-down lists easy to implement, easy to use, and a good way to give people fast paths to the information they want.

Redirect to Current Files

One of the best things about the Web is the way that materials are continually being updated, which is also one of the worst things. On the good side, we get up-to-date information from well-managed Web spaces; on the down side, we run into broken links and bookmarks whenever somebody has moved a file.

As a specific example of the type of filename changes I'm about to discuss here, all of the on-line guidelines and standards from the Information Architecture Project have filenames such as "ia581512.html". In this structure, the first part of the filename ("ia5815") identifies the guideline (IA-5815: Laboratory Standard HTML in this case), while the next two digits ("12") identify the revision number (1.2). Each time the revision is updated, the old file is archived into a separate directory and the filename of the current file is incremented (to "ia581513.html" in this case). This is good for document control and archive maintenance, but it can cause a lot of problems with keeping links up to date. The approaches described below address these problems.

If we're maintaining Web space ourselves, HTTP servers such as NCSA HTTPd offer a "Redirect" option that allows us to automatically forward people from old URLs to new ones whenever we change our file names. At the directory level, this is set up in the access control file (".htaccess" by default, though the name can vary by server, and the system administrator can change it in the configuration files).

The simplest way to do this is to simply point from the old file to the new file. In the access control file for the directory where the old file was placed, enter a line similar to the following (after whatever access control permissions there might be):

Redirect /old-path/old-name.html /new-path/new-name.html

Anybody who follows a link to the old file will then get the new file instead. The old path can be the same as the new path. Use a separate line for each filename that has been updated.

The above approach has the benefit of initial simplicity, plus it keeps your own links appropriately forwarded. If, however, you have a lot of files whose names are regularly updated (e.g., if you're using a new filename for each revision of a document), you can quickly run into long lists and/or multiple redirects, slowing down the server's performance.

A better approach in this case is to set up alias URLs for each of the files you expect to update:

Redirect /alias-path/alias1.html /real-path/real-name1.html
Redirect /alias-path/alias2.html /real-path/real-name2.html
Redirect /alias-path/alias3.html /real-path/real-name3.html

Use the alias URL for any links that you build or URLs you publish. When you update the current real name, you'll then only need to (a) update the name that the alias is forwarded to, and (b) add a redirect from the old name to the alias (in case somebody has bookmarked or linked to the old name). There will always be at least one redirect in this setup, but there will never be more than two, the maintenance will be much simpler, and all the related links will continue to work.

For More Information

For more information about the Information Architecture Project, please visit our home page at http://www.lanl.gov/projects/ia/ (or look under "What's New" from the Laboratory home page). For a summary of the project's WWW-related guidance, please select the "Web" button from our masthead.

If you would like printed or e-mail copies of any of the IA materials, please contact Tad Lane at the address given below.

Tad Lane, tad@lanl.gov, (505) 667-0886
Information Architecture Standards Editor
Communications Arts and Services (CIC-1)

Mercury Open-Secure ICN File Transfer Service Now Available

Mercury Overview

The Mercury CFS file transfer service is now in production and available to all ICN users. This new service provides an efficient and secure method to transfer unclassified Common File System (CFS) files between the Open ICN and the Secure ICN (and vice versa). The Mercury service automatically logs each transaction while operating without physical connections between the Open and Secure Mercury machines. Operators manually transfer tape cartridges between the Mercury machines approximately every hour on the hour from 7:00 a.m. to 6:00 p.m., Monday through Friday. At present, the data transfer media are 8 mm, 5-Gbyte tape cartridges.

The Mercury system depends on version 4 Kerberos (k4rsh). You can run Mercury only from machines that can execute "kinit", which is now limited to UNIX-based machines, including the Open Crays. If Kerberos becomes available for Macs and PCs, then Mercury can be executed from those machines as well. We expect security considerations to permit the installation of Mercury on the Secure Crays at a later date.

Steps to Transfer a File

1. Set an UNCLASSIFIED CFS file to the GREEN partition.

2. Set CFS read-write permission for Mercury user number 900544. (The Mercury user number passwords are protected in sealed envelopes in a safe inside the CCF.)

3. Enter commands shown in the abbreviated session below.

```
SecureMach % kinit [Secure-side Kerberos initialization.]
. . .
SecureMach % push /push_dir/file.c [Mercury command to "push" unclass-
102 : Pushing                       ified file(s) to the Open CFS.]

[Wait for next tape transfer by CCF operators]

OpenMach % kinit [Open-side Kerberos initialization.]
. . .
OpenMach % status       [Check Mercury status for request 102.
102 : Ready to pull     Must be "Ready to pull" before executing
                        "pull" command.]

OpenMach % pull file.c /pull_dir   [Mercury "pull" copies file(s) to
102 : Pull complete                Open CFS /pull_dir directory.]
```

Mercury CFS File Transfer Details

Check the Mercury man page for detailed usage descriptions and examples of how to transfer CFS files using the Mercury commands push, pull, status, and mcancel. The Mercury man page is available in /usr/lanl/man/man1 in both the Open and Secure networks.

Mercury's Characteristics

• Transfer bandwidth is 1.7 Gbytes per hour (essentially, the current speed of the network between workstations and CFS).

• A flexible user interface provides the use of wild card characters to specify multiple files per transfer request. The wild card usage is identical to existing CFS wild card characters.

• Reliable transfer protocol. Mercury uses handshaking and resends data as necessary to recover from system crashes (e.g., problems with the Mercury machines, network problems, and CFS problems). Mercury maintains a data recovery database and queues requests to avoid losses.

• Mercury logs requests and results for files transferred, which provides an audit trail to check on the proper use of the Mercury service. A copy of the file to be transferred is maintained by Mercury in a private CFS directory for 60 days on the "push-side" network. A user can access the log for a given request with the "status" command. If a file transfer is not pulled within two weeks, the request will be canceled.

• Operators interact with the Mercury system less than 1 minute per hour to exchange tapes between the Open and Secure Mercury machines.

• Mercury provides an X Windows based consulting tool (not available in the Secure net). The ICN consultants will use this tool to monitor Mercury requests and help answer user questions.

Please contact the ICN Consultants for usage questions (consult@lanl.gov or 505-667-5745) and report problems and suggestions for improvement to either of the authors listed below.

Rick Kirk, rlk@lanl.gov, (505) 665-9855, Data Storage Group (CIC-11)

Dwight Barrus, dmb@lanl.gov, (505) 667-8870 Data Storage Group (CIC-11)

Good-Bye Secure Unclassified

Jeff Johnson, jeffj@lanl.gov, (505) 667-5746
Customer Service Group (CIC-6)

Sharon Wilhelmy, sw@lanl.gov, (505) 665-6328
Customer Service Group (CIC-6)

With the advent of ICN2, nearly all unclassified computing has migrated to the Open environment. Therefore, as a cost savings measure, the Secure Unclassified Network was disconnected on September 22, 1996. This change means that

• A classified password and connection are needed to access the Secure environment,

• Production jobs that ran at the Secure unclassified level must now run classified or run in the Open environment, and

• Machine zeta cannot be accessed at the unclassified level (e.g., 123456_u).

To give users sufficient warning, we published a notice on the Change Control Web page and contacted all users who either (1) had logged into the Secure at the unclassified level in the last three months or (2) had a Secure Unclassified password but not a Secure Classified password.

If, despite these efforts, "the word" did not get to you, please contact Jim Clifford (jrc@lanl.gov, (505) 667-2596) or Ed Gallegos (meg@lanl.gov, (505) 667-0541) for network assistance. For information about passwords, contact the ICN Password Office (E-mail: validate@lanl.gov, Fax: (505) 667-5304, Phone: (505) 665-6328, Mail Stop: B251). For other questions, contact the ICN Consulting Office (consult@lanl.gov, (505) 667-5746).

Enterprise Information Systems

Addressing Laboratory Information Systems Needs

The Enterprise Information Systems project identifies and initiates the development of information systems tools that address the strategic and operational needs of the Laboratory. The Enterprise project also works with stakeholder organizations to prioritize the information systems needs of the Laboratory. Strategic systems identified to date are an integrated human resource system, office automation, electronic forms and documents, program development/project execution, and electronic commerce.

Project Goals

The Enterprise Information Systems project has identified the following goals that will lead to the attainment of its mission.

• Identify customer information needs.

• Champion the development and implementation of customer solutions.

Project Accomplishments

• The CIC Division Office piloted Lotus Notes for groupware and is now expanding it to other divisions.

• CIC Division piloted a business plan application division-wide and will integrate it into CIC business practices.

• CIC Division is beta testing an imaging product to provide scanning and annotation capabilities.

Other Accomplishments

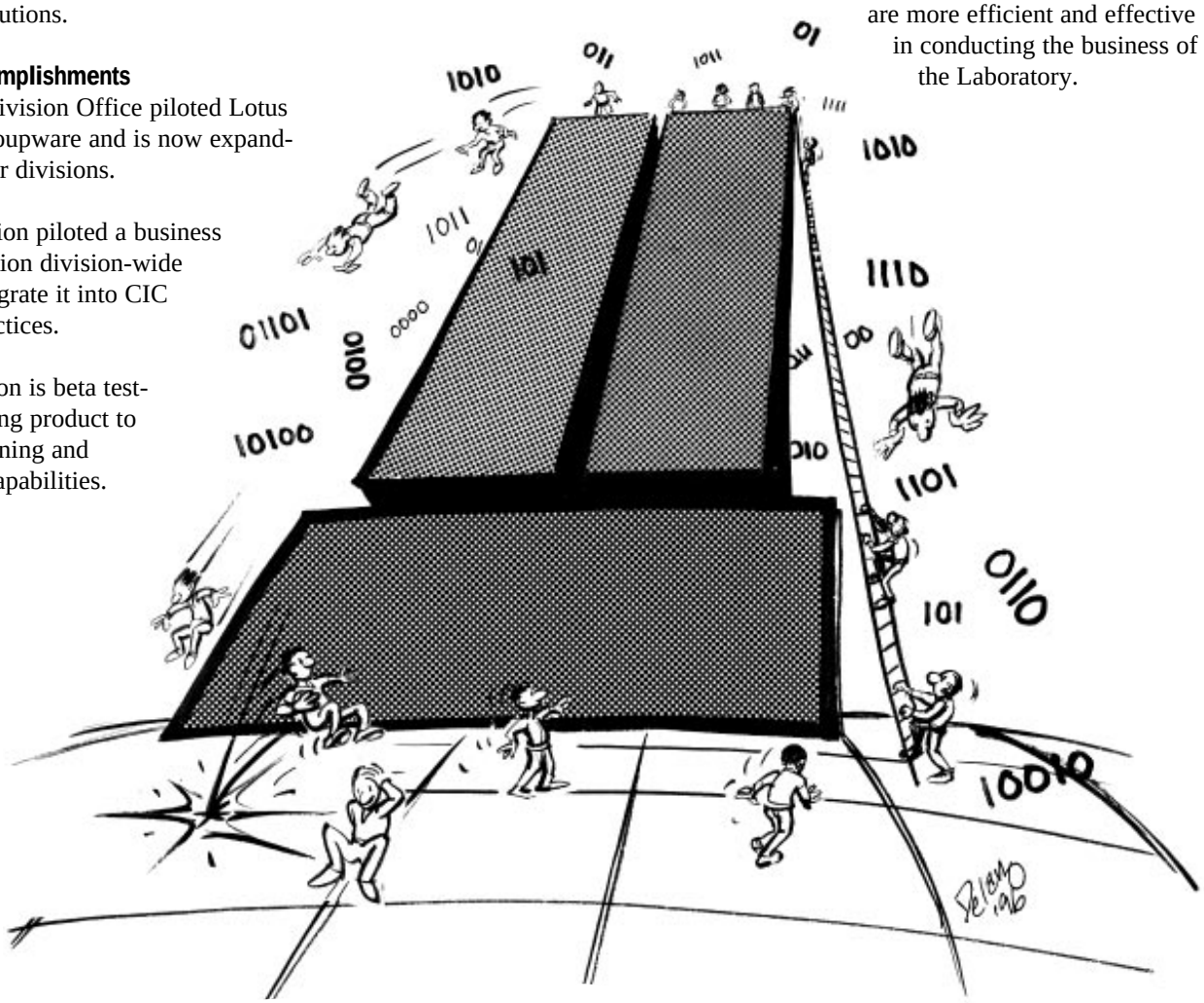
• Developed a process for initiating and implementing the Laboratory-wide Information System. The Human Resources Information System proposal team is piloting the process.

• Working with the Information Architecture project to establish Laboratory-wide information standards.

• Conducting an inventory of business information systems.

Supporting Laboratory Tactical Goals

The priorities identified by Enterprise Information Systems directly support the Laboratory's tactical goal for operations: "Make notable improvement in our operations and reduce controllable costs." By improving existing information systems or implementing new automated tools, the benefits to the Laboratory include a reduction in the manual processing of information. The new processes are more efficient and effective in conducting the business of the Laboratory.



The new processes also relate to the tactical goal for communication: "Make notable improvement in open, two-way communications among managers and other employees and contractors." By developing office automation and groupware applications, the communications can occur more rapidly and regularly. These applications allow documents to be shared and annotated amongst groups, thereby improving communications across the Laboratory.

Process Improvements

Continuous quality improvement is a major component of activities undertaken by the Enterprise Information Systems project. Enterprise is an active member of three quality improvement teams: Compensation, Program Development/Project Execution, and Total Integrated Procurement System.

The process improvements associated with the tasks undertaken by the Enterprise project include the following:

• Improving work flow and communications by automating office functions.

• Allowing concurrent viewing, annotating, and editing of information through the use of work-group technologies instead of the serial processing presently used.

• Providing tools for project leaders and program developers to initiate and monitor programs brought into the Laboratory.

• Eliminating the need to purchase and warehouse forms.

• Providing the ability to rapidly change a form when needed rather than having to wait until inventories diminish.

• Working to meet the DOE mandate that all its organizations use electronic commerce as the means for doing business by the year 2000.

• Allowing system vendors direct access to information about purchase orders to eliminate the need for exception processing of just-in-time procurements.

Charlotte Lindsey, lindsey_charlotte@lanl.gov, (505) 667-8421
Project Leader: Enterprise Information Systems (CIC-DO)

ICN Password Office Provides FAQ Web Page

Have a question for the ICN Password Office? Chances are someone else has already asked your question. Check out our Frequently Asked Questions (FAQ) Web page at

http://www.lanl.gov/services/passwords/passwd.faq.html

Hopefully, you'll find your answer there or at least find out exactly where to go to get the answer. If not, let us know. We'll find the answer and then add it to the FAQ list. Below are some examples taken from our list.

Question #1: I don't need my smartcard any more. What should I do with it?

Answer: Your smartcard has a 3-year battery. Turn the card into your group office so the remaining life can be used by another group member.

Question #2: I want to change my password. How often can I change it?

Answer: You can change your password as frequently as you want (e.g., you're concerned it has been compromised, or it's hard to remember). Just go to register.lanl.gov and change it.

Question #3: How do I update my EIS (Employee Information System) status?

Answer: If you can access Labwide systems, you can update your own directory information (enter EIUDI). To update other EIS information, Lab employees should contact their group offices. TAD contractors should call (505) 667-3235 or (505) 665-3075; technical contractors should call (505) 667-2955.

Question #4: CFS (Common File System) charges of former staff are eating us alive. What can we do?

Answer: We can delete files belonging to former staff for you (you will be charged for the time spent processing your request, but you'll be money ahead in the long run) or, if you want to do it yourself, we'll give you access to the directories. E-mail your request to validate@lanl.gov.

Wanda Dunlop, Lourdes Martinez, and Phil Villareal
ICN Password Office / Customer Service Group (CIC-6)
E-mail: validate@lanl.gov, Fax: (505) 667-5304
Phone: (505) 665-6328, Mail Stop: B251

Don't Get Too Attached to Your Attachments

If you use Eudora (or any other e-mail program capable of receiving attachments), the possibility exists for people to send you malicious programs over the network. I've chosen to highlight Eudora in this article because it is the most widely used e-mail program at Los Alamos.

Programs exist that are designed to do harmful things to your computer. Such programs are commonly called "trojan horses" or "viruses," depending on what they're designed to do. Trojan horses usually masquerade as legitimate programs until they are executed. If someone attaches a trojan horse to an e-mail message and sends it to you, Eudora will decode it automatically. If you then execute that program, you will trigger the trojan horse and suffer the consequences. (All recent versions of Eudora automatically decode attachments as they are received. This function cannot be disabled.)

The attachment can be executed in one of two ways: (1) If you double-click on the attachment, it will usually be opened by your computer system; (2) If you double-click on the line in your e-mail message that reads "Attachment Converted:" Eudora will open the attachment for you (see Figure 1). If the attachment is malicious, you have just executed it.

Eudora is not the only e-mail program vulnerable to this sort of attack. Almost any e-mail program is capable of receiving attachments and could be used to send you trojan horses or viruses over the network.

It is important to stress that viruses and trojan horses are nothing new, nor are they a huge problem for most people. Part of the price we pay for doing business over the Internet is accepting this risk. By disseminating the kind of information contained in this article, we hope to make using the Internet safer for everyone.

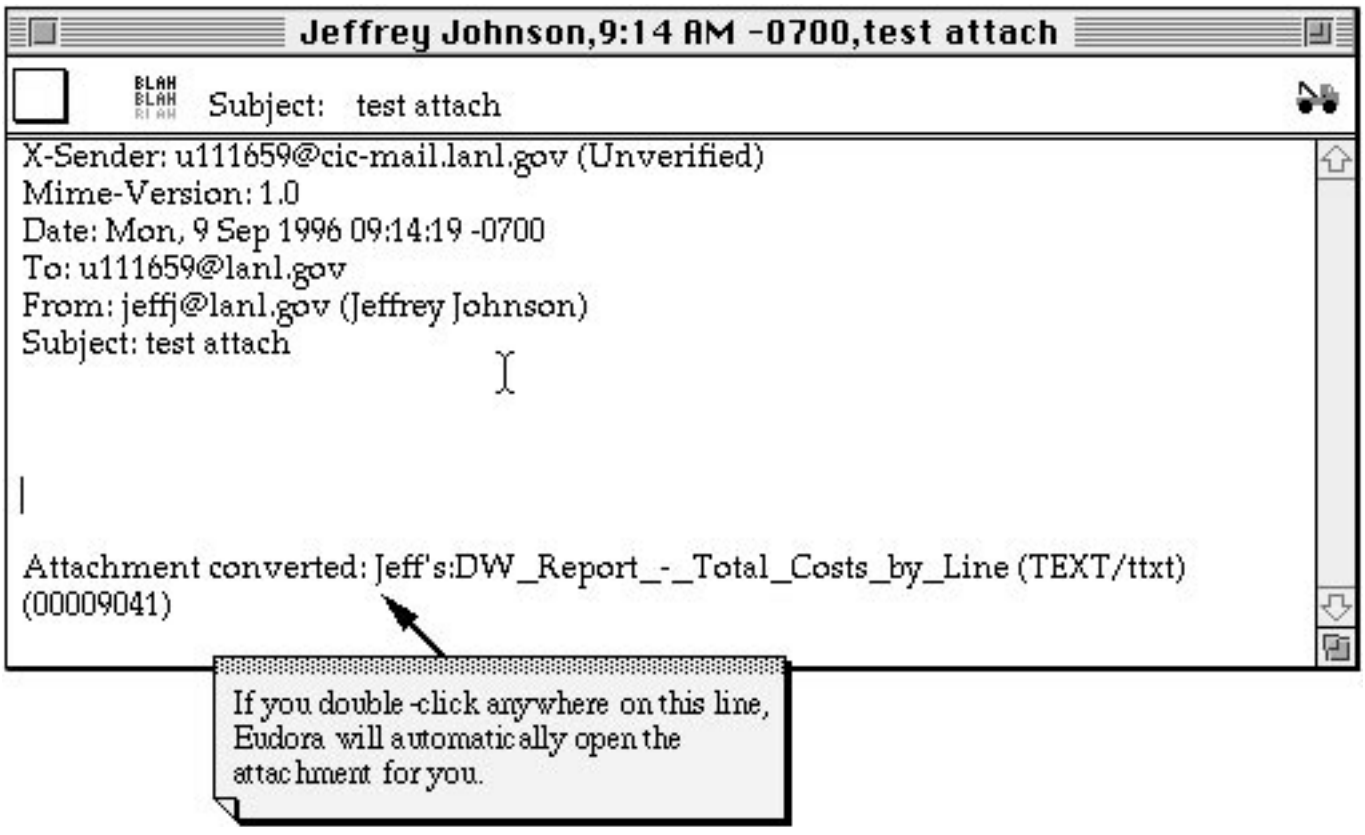


Figure 1. Eudora Window with Attachment Line

Tips for Managing Your Attachments

• Keep careful track of the decoded attachments on your hard-drive. You may want to enable a feature in Eudora that automatically deletes attachments when the original e-mail message is deleted. You can activate this feature by selecting Settings under the Special menu, selecting Attachments in the Settings window (see Figure 2), and then selecting the appropriate check box as indicated in Figure 2.

• Keep your attachments folder empty if possible. This makes it easy to spot new attachments.

• Do not open any attachments sent to you by people you do not trust—especially if the attachment is from someone outside of the Laboratory. If you receive e-mail from a stranger that has an attachment, do not attempt to open the attachment. Either delete the attachment immediately or save it to a floppy disk for later examination by your OCSR (Organizational Computer Security Representative).

Note: Remember that these malicious attachments cannot harm your computer as long as you don't execute them.

For help or more information, please feel free to call the CIC Customer Service Center at 5-4444 (option 1), or send e-mail to cichelp@lanl.gov.

Jeffrey Johnson
Customer Service Group (CIC-6)

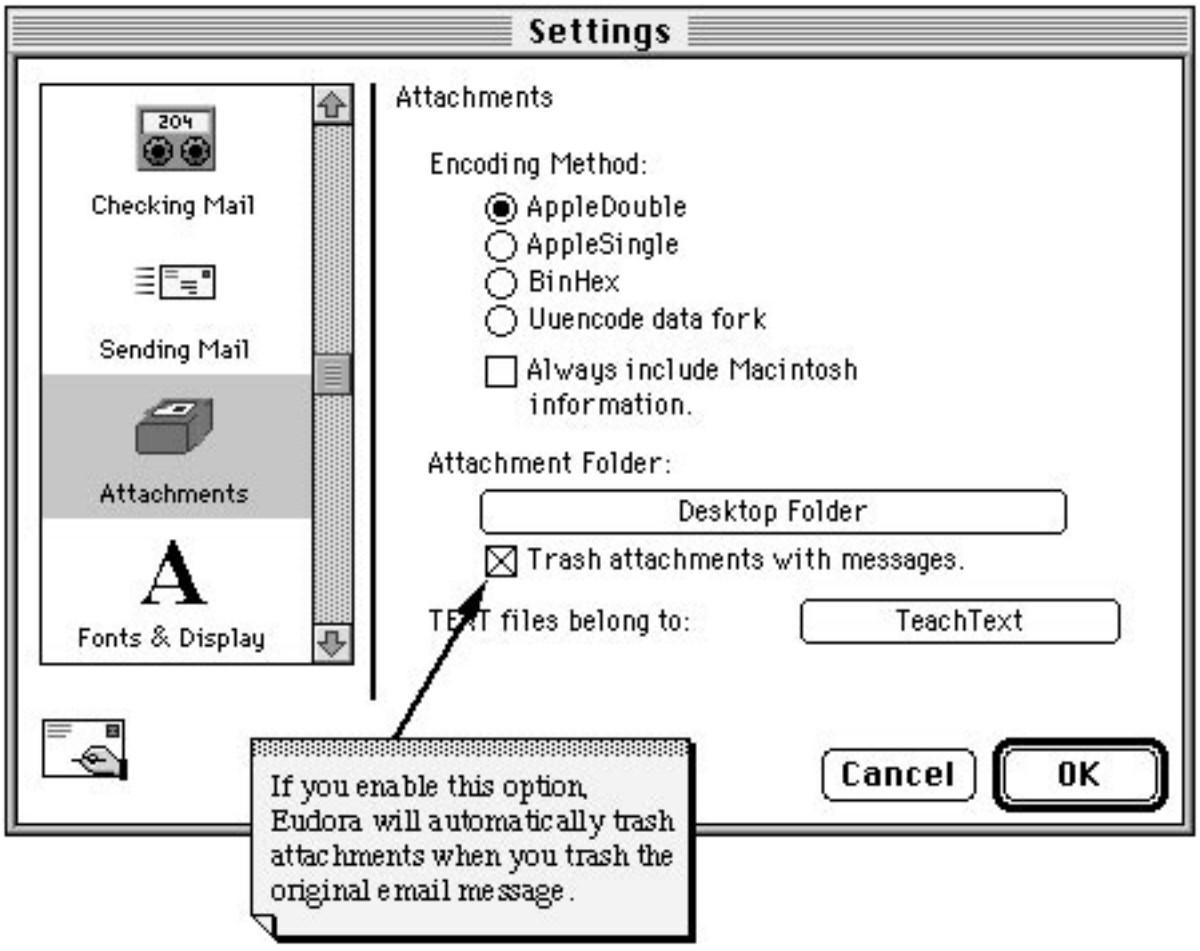


Figure 2. Eudora Settings Window

Vendor Computer Training

The Customer Service Group (CIC-6) supports vendor training in technical computing areas such as programming languages, system administration, networking, and World Wide Web development tools. The support provided by CIC-6 can be as limited as providing the appropriate facilities for a specific group or as extensive as coordinating training functions such as system administration, vendor acquisition, EDS administration, and class facilitation. The table below lists classes that are either currently being offered or are available on request. An expanded list of classes that are potentially available can be viewed on the Internet at

http://www.lanl.gov:8010/computer-information/ComputerTraining/Vendor.html

To request registration in any vendor course or for general assistance with vendor training, please contact the CIC-Division Vendor Training Coordinator at (505) 667-9399 or send e-mail to cic6-train@lanl.gov.
*Cost per student will vary depending on the total number of students enrolled in the class.

Course Title	Date	Time	Cost	Course Number
C Programming (Beginning)	**Available on Request (5 days)**		**$1200–$1700***	**3996**
	Prerequisite(s): An understanding of and useful skills in a high-level programming language. A current ICN password is required. Topics Include: Introduction and Fundamentals; Basic Semantic Constructs - Getting; Base Level I/O With C; The Preprocess-Compilation Environment; Operators, Data Types, and Storage Classes; Control Flow Constructs; Conditional Constructs; Higher-Level Data Constructs in C; File I/O; UNIX Software Tools and POSIX System Calls.			
C Programming (Advanced)	**11/18–22/96**	**8:30–5:00**	**$1200–$1700***	**4777**
	Prerequisite(s): Useful skills and experience with the C Programming. A current ICN password is required. Topics Include: Data Structures, Algorithms, and OOP; An Advanced Clinic for C ; The ANSI C Recommendation X3.159; C and ANSI C War Stories; The Data Structure and the Assessment of Algorithms; Arrays; Structures; Unions; Stacks; Queues; Linked Lists; Recursive Functions; Binary Trees; Hashing; File Organizations Using the C Runtime Library; Standard Interprocess Communication Mechanisms; and An Introduction and Overview of AT&T's C++ 3.0.			
C++ for Experienced Programmers	**12/16–20/96**	**8:30–5:00**	**$1200–$1700***	**9050**
	Prerequisite(s): Excellent C Language programming skills. Topics Include: Major Differences and Additions to ANSI C; Building C++ Classes; Introduction to Text I/O with C++; Function Overloading; Single Inheritance; Virtual Functions; Multiple Inheritance; Operator Overloading; Creating, Initializing and Assigning Objects; Passing and Returning Objects; Templates, Parameterized Functions and Classes; C++Stream I/O with the File System; and C++ Course Summary.			
Managing Internet Mail: Setting Up and Troubleshooting Sendmail and DNS	**Available on Request (3 days)**		**$1300-$1800***	
	Prerequisite(s): General knowledge of Unix system and network administration as well as experience with sending and receiving Internet electronic mail. Topics Include: Introduction to Using Electronic Mail; Theory of sendmail Operation; Understanding the sendmail.cf File; Address Rewriting Rules; Debugging sendmail; Understanding the Function of Sub-Domains in a Complex Mail Network; Setting Up Mail Sub-Domains and Mail Routing Hubs; Mail eXchanger (MX) Records and Mail Delivery in the Internet; Setting Up the Domain Naming System; Sendmail 8 - The Next Generation; Automatic Creation of sendmail.cf Files for Sendmail 8; and Verifying and Debugging sendmail.cf Files Generated by the sendmail Compiler.			

Course Title	Date	Time	Cost	Course Number
Object-Oriented Analysis and Design	**Available on Request (4 days)**			
	Prerequisite(s): Familiarity with fundamental programming concepts (data structures, types, control flow selection, iteration, etc.). Prior experience in systems or software analysis and/or development is useful but not required. Topics Include: Introduction to Object-Oriented Technology; The Object Model; OOAD Comparisons; Object-Oriented Analysis and Design I and II; Object-Oriented Analysis and Design Workshop; Object-Oriented Analysis/Design Methodologies; Object-Oriented Tools; Case Study: Texas Instruments; and Management Issues.			
Perl Programming	**Available on Request (1–3 days)**		**$500–$700/day***	**8095/8093**
	Topics Include: Describes the programming language that occupies the niche between shell and C Programming; syntax and semantics; data types; operators, control flow, regular expressions, and I/O facilities; the Perl debugger.			
Perl Programming for the WWW	**Available on Request (2–3 days)**		**$500–$700/day***	
	Prerequisite(s): Programming skills with a light background in Perl and HTML. Topics Include: On-line Resources; Server Configuration; Permissions; Setuid Issues; Tainting; Safe Perl; Data Security; OO Programming; Web Modules; CGI Programs; CGI.pm; What Went Wrong?; CGI Template; Using Forms; Form Template; Input Widgets; Submit Widgets; Reset Widgets; Sample Form; Password Fields; Text areas; Hidden Fields; Checkboxes; Radio Boxes; Popup Menus; Lisboxes; Image Maps; Random Links; libwww Modules; Sending Mail; Shopping Carts; Database Access; and Advanced Topics.			
SGI System Administration (Beginning)	**Available on Request (5 days)**		**$1800–$2300***	**7993**
	Prerequisite(s): Familiarity with using Silicon Graphics IRIS workstations and system administration procedures on other open system platforms. Topics Include: The Role of the System Administrator; Set Up and Configuration of an IRIS Workstation or Server; Supporting a Group of Silicon Graphics Users; System Security Maintenance; Backups and Recoveries; Configuration of Disk Drives; System Installation and Application Software; Attaching Terminals and Printers; Modifying the system Start Up and Shut Down Sequences; Automating Administrative Procedures; and Performing Basic System Troubleshooting.			
SGI Network Administration	**Available on Request (5 days)**		**$1800–$2300***	**11690**
	Prerequisite(s): Completion of Silicon Graphics System Administration (Beginning) course or equivalent knowledge and experience. Topics Include: Networking Fundamentals; Network Configuration; Network Troubleshooting; Resource Management with Network; Information Services; Domain Management with Domain Name System; Electronic Mail with Sendmail; Remote File Sharing with Network File System & Automounter; Network Performance Monitoring; and Network Security.			
SGI System Administration (Advanced)	**10/21–25/96**	**8:30–5:00**	**$1800–$2300***	**11689**
	Prerequisite(s): Completion of Silicon Graphics System Administration (Beginning) course or equivalent knowledge and experience. Topics Include: System Error Monitoring; Kernel Reconfiguration and Debugging; System Monitoring Tools; Process Management; MultiProcessor CPU Management; Memory Management and Tuning; Swap Management and Tuning; Disk Management and Tuning; XPS Filesystem Management; and System Security Concepts.			

Course Title	Date	Time	Cost	Course Number
Solaris 2.X System Administration (Beginning)	**Available on Request (5 days)**		**$1600–$2000***	**7477**
	Prerequisite: Knowledge of Unix commands and an editor. Topics include: Custom installation of Solaris2.X server; Add peripheral devices; Use format utility to display partition information; Compress and send binary files; Change system run levels; Add startup files for additional services; Add and remove software packages; Configure terminals and modems; Administer disks and file systems; Discuss basic networking concepts; Configure NFS to support the client-server environment; Use the automounter; Add and remove diskless clients; Back up and restore file systems; Perform basic recovery and troubleshooting procedures; Configure and administer the NIS+ environment.			
UNIX (Beginning)	**11/18–22/96**	**8:15–12:00**	**$738**	**5267**
	Prerequisite(s): Familiarity with a UNIX workstation. Topics Include: Overview of the Workstation Environment; Getting Started; The UNIX File System; Manipulating Files; Customizing Your Environment; The C-Shell; Editing and Writing with vi; Using the Network; Discussing NFS and NIS; Using Basic System Status Commands; Startup and Shutdown Procedures; Using tar.			
Windows NT Workstation and Server	**Available on Request (5 days)**		**$1600-$1900***	
	Prerequisite(s): This course is valuable for personnel who are evaluating or migrating to Windows NT. It benefits system and network administrators, other support personnel, programmers, and users from Windows, Unix, OS/2, or VMS backgrounds. Topics Include: Introduction to Windows NT; System Overview and Security; Network Configuration Options; Installation; Server Choices; User Administration and Security; Files and Printers; Built-in Network Support; Configuration Options; Using Setup; Data and Disk Management; The Registry; Troubleshooting; and Optimization and Performance.			

Research Library Training

The LANL Research Library provides training for using its specialized databases. Training sessions begin and end at times indicated below. Classes are free but you must pre-register by calling the Research Desk at 7-5809 or sending e-mail to library@lanl.gov. Special classes and orientations can also be arranged.

Date	Time	Subject Matter
10/3/96	1:00 -1:30 p.m.	Business Sources on the Web
10/8/96	1:00 -1:30 p.m.	SciSearch Alerting Service
10/10/96	1:00 -1:30 p.m.	1996 Chemical Abstracts on CD-ROM
10/15/96	1:00 -1:30 p.m.	MELVYL (U of CA Specialized Databases)
10/16/96	1:00 -1:30 p.m.	Finding Addresses & Phone Numbers on the WWW
10/17/96	1:00 -1:30 p.m.	Energy Database—At Your Desktop!
10/17/96	2:00 - 4:00 p.m.	Information Sources on the Internet via WWW
10/22/96	1:00-1:30 p.m.	SciSearch at LANL—At Your Desktop!
10/24/96	1:00-1:30 p.m.	Grants and Funding Information
10/24/96	2:00 - 4:00 p.m.	Information Sources on the Internet via WWW

Labwide Systems Training

The Customer Service Group (CIC-6) offers training for users of Laboratory information systems. The CIC-6 courses offer training for a variety of personnel including property administrators, group secretaries, training coordinators, budget analysts, group leaders, or anyone needing to access training records, property records, costs, employee information, travel, chemical inventories, etc. Refer to the table below and on the following pages for specific information about courses currently offered.

Course Registration

You must have a valid ICN password before taking any of the courses shown in the table. To register for a course, call the CIC-6 Training, Development, and Coordination section at 667-9559 or access our Web page. From the LANL home page, look under "Services/Computing at LANL/Training" or enter the URL:

http://www.lanl.gov:8010/computer-information/cic6/teampage.html

Course Title	Date	Time	Cost	Course Number
Employee Development System - Basic Training (EDS I):	**10/9/96**	**8:30 – 12:00**	**$350**	**Course #5289**
	The course provides hands-on instruction to request course enrollment, use the on-line course catalog, retrieve training transcripts, and assign EDS authorities. The student will learn to create courses, add students to the courses, and generate several training reports.			
Employee Development System - Training Plans (EDS II):	**10/23/96**	**8:30 – 12:00**	**$350**	**Course #7155**
	Participants receive hands-on instruction to create and maintain training plans, assign assignment codes, and generate training plan reports. Attendees must have prior training in the Employee Development System (course #5289).			
Eudora Electronic Mail	**11/13/96**	**1:30 – 3:30**	**$175**	**Course #9762**
	This class is a hands-on class that teaches the participant how to use Eudora software to create, send, receive, and edit electronic mail messages. In addition to these procedures, the participant will learn what related settings mean and how to configure the system to meet his or her individual needs.			
Data Warehouse Basics	**10/1/96**	**8:30 – 10:30**	**$175**	**Course #11961**
	Students will receive hands-on training to generate standard reports and make quick queries from information in the data warehouse, a real-time collection of data tables from Laboratory financial, time-reporting, and personnel systems.			
Data Warehouse/ Financial Reporting	**10/18/96**	**8:30 – 12:00**	**$350**	**Course #11960**
	Students will receive hands-on training to generate standard financial reports and make on-line queries from information in the "data warehouse," a collection of data from Laboratory budgeting, accounting, and time-keeping systems.			

Course Title	Date	Time	Cost	Course Number
Financial Management Information System (FMIS):	**Scheduled on Request**		**$350**	**Course #8338**
	Participants receive hands-on instruction to "explode" and "transfer" through the costs, allocations, and outstanding commitments screens. In addition, participants will create/review reports, access the Information Manager Utility for printing reports, and learn how to assign authorities in the system.			
HTML Basics	**10/25/96**	**8:30 – 12:00**	**$350**	**Course #11605**
	Students will gain a basic understanding of HTML (Hypertext Markup Language), the language for the World Wide Web. Topics covered will be commands and standards, creating and editing documents, and authoring programs.			
HTML Tables	**November**	**8:30 – 12:00**	**$350**	**Course #11959**
	Students gain basic understanding of how to create various tables in HTML and new tags in HTML 3.0. Netscape-specific tags are also identified for clarity. Prerequisite: HTML Basics (Course #11605) or permission of the instructor.			
Introduction to the Internet: Beginning Netscape	**November**	**1:30 – 3:30**	**$175**	**Course #10961**
	Students gain basic understanding of the Internet and the World Wide Web and the use of Netscape as a browser to surf the Net. Topics covered are both Laboratory sites and open sites, along with practical uses of the Internet.			
Lotus Notes 4.0	**November**	**1:30 – 5:00**	**$350**	**Course #9917**
	This class provides hands-on instruction for Mac and PC users to use Lotus Notes software to create and send E-mail memos; fax documents; search databases; create filters, nicknames, banners, and doclinks; set defaults; and use multiple address books. In addition, participants learn how to use the memo, meetings, and discussion databases.			
On-Line Forms	**November**	**3:30 – 5:00**	**$175**	**Course #9756**
	Participants will learn to use Netscape software to access Lab-wide information and forms. Using Jetform Filler software, participants will access, complete, and print forms such as the "ICN Validation Request," "Visitor Request for Unclassified Visits to Security Areas," and "Request for Quotation."			

Course Title	Date	Time	Cost	Course Number
Property Accounting, Inventory, and Reporting System (Advanced)	**Scheduled on request**		**$350**	**Course #9918**
	This course will include a refresher of PAIRS, advanced techniques and tips, explanation of the notification system, and report capabilities. Swap Shop, Loan Out information, and support tables will be discussed. Participants should already have a basic understanding of and know how to use PAIRS.			
Purchase Card System	**10/7/96**	**1:30 – 2:30**	**$175**	**Course #11924**
	Students will learn to reconcile monthly statement of account, submit reconciled statement of account for approval, print statement of account for audit records, and delegate reconciliation authority. Prerequisite: PCS Overview. Call Ruby O' Rear at 665-4523.			
Reporting with Infomaker	**10/10–11/96**	**8:30 – 5:00**	**$650**	**Course #11054**
	Hands-on training to query data and develop ad hoc, or non-standard, reports from the LANL data warehouse using Infomaker software.			
Time and Effort System (GUI)	**10/16/96**	**8:30 – 10:00**	**$175**	**Course #11018**
	The student will learn how to enter attendance, amend attendance, approve attendance, and submit exception and approval reports. Time codes and associated policies will also be discussed. In addition, the student will learn how to use the Information Manager utility to view and print reports.			
Travel—New!	**10/8/96**	**8:30 – 11:30**	**$350**	**Course #12091**
	Hands-on training to submit and approve travel requests and expenses in the new Travel System which replaces the TRIPS on-line system and the post-travel expense worksheets.			

CUT ALONG DASHED LINE

Los Alamos
National Laboratory

INTEGRATED COMPUTING NETWORK (ICN) VALIDATION REQUEST

To access ICN computing resources, please complete all parts of this form that apply to you, including "Special Requirements."

If you have **questions**: Call: (505) 665-1805
E-mail: validate@lani.gov

Mail your completed application to:
ICN Password Office (PWO)
Mail Stop: B271
Los Alamos National Laboratory
Los Alamos, NM 87545

All Laboratory computers, computing systems, and their associated communication systems are for official business only. By completing this request, users agree not to misuse the ICN. The Laboratory has the responsibility and authority to perodically audit user files.

Owner Information

Z-Number (if you have one)	PWO Use Only	Name (last, first, middle initial)
LANL Group	LANL Mail Stop	Citizenship (Foreign National see "Special Requirements-Foreign National")
Phone Number	Cost Center	Program Code

Check LANL affiliation:

- ☐ LANL employee
- ☐ Contractor _____ (specify contract company)
- ☐ Consultant, VSM, associate
- ☐ External user_____ (specify employer)
- ☐ Other (specify)_____

Send password / smartcard to:

☐ Mail Stop or ☐ Mail to address indicated below

Name / Organization
Address
City, State, Zip Code

Access Check access method and needed partitions:

Access method: ☐ ICN Password ☐ Smartcard ☐ Both

☐ **Open** partition (e.g., email systems, open machines)

☐ **Administrative** partition (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])
If you are not a Q-cleared LANL employee, see required steps in section "Special Requirements-Administrative Partition," unless you already have Administrative access with an ICN password.

☐ **Secure** partition (i.e., secure machines)
Indicate level(s) of data to be processed:
- ☐ Unclassified
- ☐ Secret

I certify this person does require secure access:

_____ _____
Manager Signature (Group Leader or above) Date

NOTE: A Q-clearance is required. All classified computing must be performed within the Secure environment.

PWO Use Only

New ☐ Change ☐	Clearance Status	Processed	Lv	Smartcard Serial #
Comments:				

Form 1646 (1/95) Supersedes previous versions (rev. 10/20).

Continue

Special Requirements

Administrative Partition

(U.S. Citizens Only) Lab-Wide Systems (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])

☐ Under 18 years of age

If you need to access Administrative systems, your group leader must provide a memo accepting responsibility for your actions and justifying your need for access. This memo is to accompany all forms taken to the security briefing (see "Contractor or Non-Q-Cleared") section below. You may not access the Secure Partition.

☐ Contractor or Non-Cleared

Phone (505) 667-9444 to obtain Access Authorization packet.

Phone (505) 667-9153 to schedule a security briefing.

Bring all forms including this ICN Validation Request to the security briefing for approval.

Security Briefing Approval Signature	Date

☐ Foreign National

Attach a copy of Form 982 (REQUEST FOR UNCLASSIFIED VISIT OR ASSIGNMENT BY A FOREIGN NATIONAL) with all approval signatures. Be sure Box #11 of Form 982 is completed. If you are not a visitor/assignee under a LANL/DOE approved Visit / Assignment Request, attach written justification from your host Division Director describing your need to access the ICN.

Authorization (required)

Print Manager Name (Group Leader or above)	Manager Z-Number	Group
Manager Signature (Group Leader or above)	**Mail Stop**	**Date**

If you are NOT a LANL employee, obtain your LANL contact's signature in addition to the contact's manager's signature.

NOTE: LANL contacts are regular Laboratory employees. Contacts are responsible for obtaining annual re-authorizations, forwarding renewals, and notifying the ICN Password Office of changes in user or contact status.

Print LANL Contact Name	Contact Z-Number	Phone Number	Group
LANL Contact Signature		**Mail Stop**	**Date**

Reader Feedback

Feedback helps us to provide a document that responds to the changing needs of its readership. If you have comments or questions about this publication, please let us hear from you. We have reserved the back of this form for that purpose. We also accept articles for publication that are of interest to our readers. Contact the managing editor for more information. This form is also used for new subscriptions, deletions, or changes. Instructions are on the back. If you prefer to contact us by E-mail, send your comments and/or subscription request to finney@lanl.gov.

Do Not Staple
Fold on This Line First

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 88 LOS ALAMOS NM

POSTAGE WILL BE PAID BY THE ADDRESSEE

MAIL STOP B251
ATTN: MIKE FINNEY, MANAGING EDITOR
CUSTOMER SERVICE GROUP (CIC-6)
LOS ALAMOS NATIONAL LABORATORY
PO BOX 1663
LOS ALAMOS NM 87544-9916

Do Not Staple, Seal with Tape
Fold Here

cut along dashed line

Feedback

New Subscriptions, Deletions, and Changes

BITS is published by Los Alamos National Laboratory. If you would like to be added to or deleted from our mailing list, please check the appropriate line, complete the form below, and mail us the form.

_____ Add my name to the **BITS** mailing list.

_____ Delete my name from the **BITS** mailing list.

_____ Change my name/address as indicated below.

Name		Date
Address		Mail Stop
Group	Organization	
City	State	Zip
Phone	Number of copies	Employee Z#

INDEX

Keywords	Title of BITS Article	Date	Page
Information Architecture (IA)	*IA Project Proposes Web Publication Guidelines*	*Dec. '95*	*4*
Internet	*Responsible Use of the Internet*	*July '96*	*1*
ISDN (Integrated Services Digital Network)	*Orders for ISDN Suspended*	*July '96*	*4*
Lab-Wide Systems	*Questions and Answers for Lab-Wide Systems Users*	*Apr. '96*	*14*
LSF (Load Share Facility)	*Life in the Fast Lane: Using LSF to Cut Down on Cluster Computing Time*	*June '96*	*3*
Macintosh	*Four Macintosh Shareware Programs That Will Make Scientists Happy*	*Sept. '96*	*9*
Medicare	*Computer Sleuths Hunt for Medicare Bandits*	*Sept. '96*	*2*
MPI (Message Passing Interface)	*Getting the Most out of MPI*	*July '96*	*5*
MIME (Multipurpose Internet Mail Extentions)	*A Closer Look at MIME*	*July '96*	*11*
Network	*Statistics on Network and Telephone Services at LANL*	*May '96*	*4*
OAG (On-line Airline Guide)	*OAG Service Announcement*	*Sept. '96*	*5*
PAGES (Print And Graphics Express Station)	*PAGES Hardware Status Now Available on the Web*	*Apr. '96*	*13*
Password	*On-Line Semiannual Passwords for Secure Users*	*Apr. '96*	*5*
Picking an On-Line Name	*Picking an On-Line Name for Yourself, Team, or Project*	*Mar. '96*	*5*
PVM (Parallel Virtual Machine)	*PVM: Easier to Use*	*Apr. '96*	*8*
Register	*Accessing Register.lanl.gov from Open and Administrative Lines with Load Sharing Facility*	*Nov. '95*	*15*
Research Library	*Research Library's Monthly Electronic Newsletter*	*Aug. '96*	*8*
Resumix	*Integration of Access and Resumix Saves Time and Money*	*Nov. '95*	*6*
Society and the Future of Computing '96	*Society and the Future of Computing '96: Call for Participation*	*Mar. '96*	*4*
Telephone Services	*FTS 2000 Provides Savings for LANL Telephone Services*	*Aug. '96*	*6*
Test Development	*New Computer Programs Automate Test Development and Scoring*	*Nov. '95*	*1*
Tymnet	*Tymnet Service to be Canceled*	*Nov.'95*	*3*
World Wide Web (WWW or Web)	*Proposal Mining and Marketing on the World Wide Web*	*Nov. '95*	*8*
	Revised "Computing at LANL" Web Menus	*Nov.'95*	*13*
	Web Access to SCISearch Database Now Available	*Nov.'95*	*14*
	The LANL Web Mistress	*Dec. '95*	*6*
	Web Browsers and Helper Applications	*Feb. '96*	*16*
	CIC Pilots Web Design Guidelines and Offers Web Classes	*Mar. '96*	*9*
	Creating Effective Web Page Backgrounds	*Apr. '96*	*15*
	Mathematical Reviews Available On-line through the Research Library Web Page	*May '96*	*3*
	Copyright and the World Wide Web	*May '96*	*5*
	CIC-1 Web Team Designs and Revises Web Pages	*June '96*	*1*
	Barnstorming the Web	*June '96*	*5*
	Images on the Web: Some Tips	*Aug. '96*	*1*
	Finding Phone Numbers and Addresses via the Web	*Sept. '96*	*5*
	Images on the Web: More Tips	*Sept. '96*	*6*
Windows 95	*Windows 95 SLIP/PPP Installation*	*Apr. '96*	*18*

Produced by the Computing, Information, and Communications (CIC) Division
Managing Editor: Mike Finney (667-2241 or finney@lanl.gov)
Design: Gloria Sharp and Mike Finney
Illustration: Dave Delano
Printing: Media Group (CIC-17)

Los Alamos
NATIONAL LABORATORY

Los Alamos
NATIONAL LABORATORY

Los Alamos, New Mexico 87545

BITS is published monthly to highlight recent computing and communications activities within the Laboratory. We welcome your suggestions and contributions. BITS can be accessed electronically via Web browsers such as Mosaic and Netscape. Enter the following URL:

http://www.lanl.gov/Internal/divisions/cic/publications.html

Nonprofit
organization
US Postage
PAID
Los Alamos, NM
Permit No. 107

LALP-96-11 (9-96)